

### AMENDMENTS TO THE CLAIMS:

This Listing of Claims will replace all prior versions, and listings, of Claims in the Application:

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84. (NEW) A battery, comprising:

(A) a first electrode comprising a compound represented by the nominal general formula:



wherein:

- (i) A is selected from the group consisting of elements from Group I of the Periodic Table, and mixtures thereof, and  $0 < a \leq 9$ ;
- (ii) at least one of M, MI and MII is a redox active element,  $0 < m, n, o \leq 4$ , and  $\frac{1}{2}[V(MI) + V(MII)] = V(M)$ , wherein V(M) is the valence state of M, V(MI) is the valence state of MI, and V(MII) is the valence state of MII, and wherein MI is selected from the group consisting of  $Li^{1+}$ ,  $K^{1+}$ ,  $Na^{1+}$ ,  $Ru^{1+}$ ,  $Cs^{1+}$ , and mixtures thereof;
- (iii)  $XY_4$  is selected from the group consisting of  $X'[O_{4-x}, Y'_x]$ ,  $X'[O_{4-y}, Y'_{2y}]$ ,  $X''S_4$ ,  $[X_z''', X'_{1-z}]O_4$ , and mixtures thereof, wherein:

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- (a) X' and X''' are each independently selected from the group consisting of P, As, Sb, Si, Ge, V, S, and mixtures thereof;
  - (b) X'' is selected from the group consisting of P, As, Sb, Si, Ge, V, and mixtures thereof;
  - (c) Y' is selected from the group consisting of a halogen, S, N, and mixtures thereof; and
  - (d)  $0 \leq x \leq 3$ ,  $0 \leq y \leq 2$ ,  $0 \leq z \leq 1$ , and  $1 \leq d \leq 3$ ; and
- (iv) Z is selected from the group consisting of a hydroxyl (OH), a halogen, and mixtures thereof, and  $0 \leq e \leq 4$ ;

wherein A, M, MI, MII X, Y, Z, a, m, n, o, d, and e are selected so as to maintain electroneutrality of the compound;

- (B) the battery further comprising a second electrode; and
- (C) an electrolyte.

85. (NEW) The battery of Claim 84, wherein A is selected from the group consisting of Li, K, Na, and mixtures thereof.

86. (NEW) The battery of Claim 84, wherein A is Li.

87. (NEW) The battery of Claim 84, wherein at least one of M and MII is a non-redox active element.

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88. (NEW) The battery of Claim 84, wherein one of M and MII is a non-redox active element.

89. (NEW) The battery of Claim 84, wherein  $XY_4$  is selected from the group consisting of  $PO_4$ ,  $AsO_4$ ,  $SbO_4$ ,  $SiO_4$ ,  $GeO_4$ ,  $VO_4$ ,  $SO_4$ , and mixtures thereof.

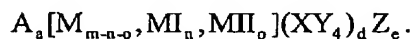
90. (NEW) The battery of Claim 84, wherein  $XY_4$  is  $PO_4$ .

91. (NEW) The battery of Claim 84, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

92. (NEW) The battery of Claim 84, wherein Z is F.

93. (NEW) The battery of Claim 84, wherein  $e = 0$ .

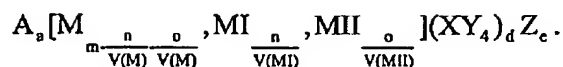
94. (NEW) The battery of Claim 84, wherein the compound is represented by the nominal general formula:



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95. (NEW) The battery of Claim 84, wherein the compound is represented by the nominal general formula:



96. (NEW) The battery of Claim 84, wherein  $d = 1$ ; A is Li; and  $XY_4 = PO_4$ .

97. (NEW) The battery of Claim 84, wherein  $d = 3$ ; A is Li; and  $XY_4 = PO_4$ .

98. (NEW) The battery of Claim 84, wherein the second electrode comprises an insertion active material.

99. (NEW) The battery of Claim 98, wherein the insertion active material is selected from the group consisting of a metal oxide, metal chalcogenide, carbon, graphite, and mixtures thereof.

100. (NEW) The battery of Claim 98, wherein the insertion active material is graphite.

101. (NEW) The battery of Claim 98, wherein the electrolyte comprises a lithium salt and a solvent selected from the group consisting of dimethyl carbonate (DMC), diethylcarbonate (DEC), dipropylcarbonate (DPC), ethylmethylcarbonate (EMC), ethylene carbonate (EC), propylene carbonate (PC), butylene carbonate, lactones, esters, glymes, sulfoxides, sulfolanes, and mixtures thereof.

102. (NEW) The battery of Claim 101, wherein the electrolyte comprises a solvent selected from the group consisting of EC/DMC, EC/DEC, EC/DPC and EC/EMC.

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103. (NEW) A battery, comprising:

(A) a first electrode comprising a compound represented by the nominal general formula:



wherein:

- (i) A is selected from the group consisting of elements from Group I of the Periodic Table, and mixtures thereof, and  $0 < a \leq 9$ ;
- (ii) at least one of M, MI and MII is a redox active element,  $0 < m, n, o \leq 4$ , and  $\frac{1}{2}[V(MI) + V(MII)] = V(M)$ , wherein  $V(M)$  is the valence state of M,  $V(MI)$  is the valence state of MI;
- (iii)  $XY_4$  is selected from the group consisting of  $X'[O_{4-x}, Y'_x]$ ,  $X'[O_{4-y}, Y'_{2y}]$ ,  $X''S_4$ ,  $[X_z''', X'_{1-z}]O_4$ , and mixtures thereof, wherein:
  - (a)  $X'$  and  $X'''$  are each independently selected from the group consisting of P, As, Sb, Si, Ge, V, S, and mixtures thereof;
  - (b)  $X''$  is selected from the group consisting of P, As, Sb, Si, Ge, V, and mixtures thereof;
  - (c)  $Y'$  is selected from the group consisting of a halogen, S, N, and mixtures thereof; and
  - (d)  $0 \leq x \leq 3$ ,  $0 \leq y \leq 2$ ,  $0 \leq z \leq 1$ , and  $1 \leq d \leq 3$ ; and
- (iv) Z is selected from the group consisting of a hydroxyl (OH), a halogen, and mixtures thereof, and  $0 < e \leq 1$ ;

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wherein A, M, MI, MII X, Y, Z, a, m, n, o, d, and e are selected so as to maintain electroneutrality of the compound;

(B) the battery further comprising a second electrode; and

(C) an electrolyte.

104. (NEW) The battery of Claim 103, wherein A is selected from the group consisting of Li, K, Na, and mixtures thereof.

105. (NEW) The battery of Claim 103, wherein A is Li.

106. (NEW) The battery of Claim 103, wherein M, MI and MII are each a redox active element.

107. (NEW) The battery of Claim 106, wherein MI is selected from the group consisting of redox active elements with a 1+ oxidation state, 2+ oxidation state, 3+ oxidation state and mixtures thereof.

108. (NEW) The battery of Claim 103, wherein at least one of M and MII is a non-redox active element.

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109. (NEW) The battery of Claim 103, wherein MI is selected from the group consisting of  $\text{Cu}^{1+}$ ,  $\text{Ag}^{1+}$  and mixtures thereof.

110. (NEW) The battery of Claim 109, wherein at least one of M and MII is a non-redox active element.

111. (NEW) The battery of Claim 103, wherein MI is selected from the group consisting of  $\text{Ti}^{2+}$ ,  $\text{V}^{2+}$ ,  $\text{Cr}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Fe}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Mo}^{2+}$ ,  $\text{Si}^{2+}$ ,  $\text{Sn}^{2+}$ ,  $\text{Pb}^{2+}$ , and mixtures thereof.

112. (NEW) The battery of Claim 111, wherein at least one of M and MII is a non-redox active element.

113. (NEW) The battery of Claim 103, wherein MI is selected from the group consisting of  $\text{Ti}^{3+}$ ,  $\text{V}^{3+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Mn}^{3+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Co}^{3+}$ ,  $\text{Ni}^{3+}$ ,  $\text{Mo}^{3+}$ ,  $\text{Nb}^{3+}$ , and mixtures thereof.

114. (NEW) The battery of Claim 113, wherein at least one of M and MII is a non-redox active element.

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115. (NEW) The battery of Claim 103, wherein MI is selected from the group consisting of non-redox active elements with a 1+ oxidation state, 2+ oxidation state, 3+ oxidation state and mixtures thereof.

116. (NEW) The battery of Claim 115, wherein one of M and MII is a non-redox active element.

117. (NEW) The battery of Claim 115, wherein MI is selected from the group consisting of  $\text{Li}^{1+}$ ,  $\text{K}^{1+}$ ,  $\text{Na}^{1+}$ ,  $\text{Ru}^{1+}$ ,  $\text{Cs}^{1+}$ , and mixtures thereof.

118. (NEW) The battery of Claim 117, wherein one of M and MII is a non-redox active element.

119. (NEW) The battery of Claim 115, wherein MI is selected from the group consisting of  $\text{Be}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{C}^{2+}$ ,  $\text{Ge}^{2+}$ .

120. (NEW) The battery of Claim 119, wherein one of M and MII is a non-redox active element.

121. (NEW) The battery of Claim 115, wherein MI is selected from the group consisting of  $\text{Be}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ , and mixtures thereof.

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122. (NEW) The battery of Claim 115, wherein MI is selected from the group consisting of  $\text{Zn}^{2+}$ ,  $\text{Cd}^{2+}$ , and mixtures thereof.

123. (NEW) The battery of Claim 115, wherein MI is selected from the group consisting of  $\text{C}^{2+}$ ,  $\text{Ge}^{2+}$ , and mixtures thereof.

124. (NEW) The battery of Claim 115, wherein MI is selected from the group consisting of  $\text{Sc}^{3+}$ ,  $\text{Y}^{3+}$ ,  $\text{B}^{3+}$ ,  $\text{Al}^{3+}$ ,  $\text{Ga}^{3+}$  and mixtures thereof.

125. (NEW) The battery of Claim 103, wherein one of M and MII is a non-redox active element.

126. (NEW) The battery of Claim 103, wherein  $\text{XY}_4$  is selected from the group consisting of  $\text{PO}_4$ ,  $\text{AsO}_4$ ,  $\text{SbO}_4$ ,  $\text{SiO}_4$ ,  $\text{GeO}_4$ ,  $\text{VO}_4$ ,  $\text{SO}_4$ , and mixtures thereof.

127. (NEW) The battery of Claim 103, wherein  $\text{XY}_4$  is  $\text{PO}_4$ .

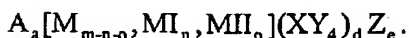
128. (NEW) The battery of Claim 103, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

129. (NEW) The battery of Claim 103, wherein Z is F.

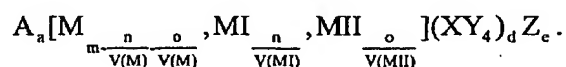
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130. (NEW) The battery of Claim 103, wherein the compound is represented by the nominal general formula:



131. (NEW) The battery of Claim 103 wherein the compound is represented by the nominal general formula:



132. (NEW) The battery of Claim 103, wherein  $d = 1$ ; A is Li; and  $XY_4 = PO_4$ .

133. (NEW) The battery of Claim 103, wherein  $d = 3$ ; A is Li; and  $XY_4 = PO_4$ .

134. (NEW) The battery of Claim 103, wherein the second electrode comprises an insertion active material.

135. (NEW) The battery of Claim 103, wherein the insertion active material is selected from the group consisting of a metal oxide, metal chalcogenide, carbon, graphite, and mixtures thereof.

136. (NEW) The battery of Claim 103, wherein the insertion active material is graphite.

137. (NEW) The battery of Claim 103, wherein the electrolyte comprises a lithium salt and a solvent selected from the group consisting of dimethyl carbonate (DMC), diethylcarbonate (DEC), dipropylcarbonate (DPC), ethylmethylcarbonate (EMC), ethylene carbonate (EC), propylene carbonate (PC), butylene carbonate, lactones, esters, glymes, sulfoxides, sulfolanes, and mixtures thereof.

138. (NEW) The battery of Claim 137, wherein the electrolyte comprises a solvent selected from the group consisting of EC/DMC, EC/DEC, EC/DPC and EC/EMC.

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139. (NEW) A battery, comprising:

(A) a first electrode comprising a compound represented by the nominal general formula:



wherein:

- (i) A is selected from the group consisting of elements from Group I of the Periodic Table, and mixtures thereof, and  $0 < a \leq 5$ ;
- (ii) at least one of M, MI and MII is a redox active element,  $1 < m, n, o \leq 3$ , and  $\frac{1}{2}[V(MI) + V(MII)] = V(M)$ , wherein  $V(M)$  is the valence state of M,  $V(MI)$  is the valence state of MI;
- (iii)  $XY_4$  is selected from the group consisting of  $X'[O_{4-x}, Y'_x]$ ,  $X''[O_{4-y}, Y'_{2y}]$ ,  $X'''S_4$ ,  $[X_z''', X'_{1-z}]O_4$ , and mixtures thereof, wherein:
  - (a)  $X'$  and  $X'''$  are each independently selected from the group consisting of P, As, Sb, Si, Ge, V, S, and mixtures thereof;
  - (b)  $X''$  is selected from the group consisting of P, As, Sb, Si, Ge, V, and mixtures thereof;
  - (c)  $Y'$  is selected from the group consisting of a halogen, S, N, and mixtures thereof; and
  - (d)  $0 \leq x \leq 3$ ,  $0 \leq y \leq 2$ , and  $0 \leq z \leq 1$ ; and
- (iv) Z is selected from the group consisting of a hydroxyl (OH), a halogen, and mixtures thereof, and  $0 \leq e \leq 4$ ;

wherein A, M, MI, MII X, Y, Z, a, m, n, o, and e are selected so as to maintain electroneutrality of the compound;

(B) the battery further comprising a second electrode; and

(C) an electrolyte.

140. (NEW) The battery of Claim 139, wherein A is selected from the group consisting of Li, K, Na, and mixtures thereof.

141. (NEW) The battery of Claim 139, wherein A is Li.

142. (NEW) The battery of Claim 139, wherein M, MI and MII are each a redox active element.

143. (NEW) The battery of Claim 142, wherein MI is selected from the group consisting of redox active elements with a 1+ oxidation state, 2+ oxidation state, 3+ oxidation state and mixtures thereof.

144. (NEW) The battery of Claim 139, wherein at least one of M and MII is a non-redox active element.

145. (NEW) The battery of Claim 139, wherein MI is selected from the group consisting of  $\text{Cu}^{1+}$ ,  $\text{Ag}^{1+}$  and mixtures thereof.

146. (NEW) The battery of Claim 145, wherein at least one of M and MII is a non-redox active element.

147. (NEW) The battery of Claim 139, wherein MI is selected from the group consisting of  $\text{Ti}^{2+}$ ,  $\text{V}^{2+}$ ,  $\text{Cr}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Fe}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Mo}^{2+}$ ,  $\text{Si}^{2+}$ ,  $\text{Sn}^{2+}$ ,  $\text{Pb}^{2+}$ , and mixtures thereof.

148. (NEW) The battery of Claim 147, wherein at least one of M and MII is a non-redox active element.

149. (NEW) The battery of Claim 139, wherein MI is selected from the group consisting of  $\text{Ti}^{3+}$ ,  $\text{V}^{3+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Mn}^{3+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Co}^{3+}$ ,  $\text{Ni}^{3+}$ ,  $\text{Mo}^{3+}$ ,  $\text{Nb}^{3+}$ , and mixtures thereof.

150. (NEW) The battery of Claim 149, wherein at least one of M and MII is a non-redox active element.

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151. (NEW) The battery of Claim 139, wherein MI is selected from the group consisting of non-redox active elements with a 1+ oxidation state, 2+ oxidation state, 3+ oxidation state and mixtures thereof.

152. (NEW) The battery of Claim 151, wherein one of M and MII is a non-redox active element.

153. (NEW) The battery of Claim 151, wherein MI is selected from the group consisting of  $\text{Li}^{1+}$ ,  $\text{K}^{1+}$ ,  $\text{Na}^{1+}$ ,  $\text{Ru}^{1+}$ ,  $\text{Cs}^{1+}$ , and mixtures thereof.

154. (NEW) The battery of Claim 153, wherein one of M and MII is a non-redox active element.

155. (NEW) The battery of Claim 151, wherein MI is selected from the group consisting of  $\text{Be}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{C}^{2+}$ ,  $\text{Ge}^{2+}$ .

156. (NEW) The battery of Claim 155, wherein one of M and MII is a non-redox active element.

157. (NEW) The battery of Claim 151, wherein MI is selected from the group consisting of  $\text{Be}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ , and mixtures thereof.

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158. (NEW) The battery of Claim 151, wherein MI is selected from the group consisting of  $\text{Zn}^{2+}$ ,  $\text{Cd}^{2+}$ , and mixtures thereof.

159. (NEW) The battery of Claim 151, wherein MI is selected from the group consisting of  $\text{C}^{2+}$ ,  $\text{Ge}^{2+}$ , and mixtures thereof.

160. (NEW) The battery of Claim 151, wherein MI is selected from the group consisting of  $\text{Sc}^{3+}$ ,  $\text{Y}^{3+}$ ,  $\text{B}^{3+}$ ,  $\text{Al}^{3+}$ ,  $\text{Ga}^{3+}$  and mixtures thereof.

161. (NEW) The battery of Claim 139, wherein one of M and MII is a non-redox active element.

162. (NEW) The battery of Claim 139, wherein  $\text{XY}_4$  is selected from the group consisting of  $\text{PO}_4$ ,  $\text{AsO}_4$ ,  $\text{SbO}_4$ ,  $\text{SiO}_4$ ,  $\text{GeO}_4$ ,  $\text{VO}_4$ ,  $\text{SO}_4$ , and mixtures thereof.

163. (NEW) The battery of Claim 139, wherein  $\text{XY}_4$  is  $\text{PO}_4$ .

164. (NEW) The battery of Claim 139, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

165. (NEW) The battery of Claim 139, wherein Z is F.

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166. (NEW) The battery of Claim 139, wherein  $e = 0$ .

167. (NEW) The battery of Claim 139, wherein the insertion active material is selected from the group consisting of a metal oxide, metal chalcogenide, carbon, graphite, and mixtures thereof.

168. (NEW) The battery of Claim 139, wherein the insertion active material is graphite.

169. (NEW) The battery of Claim 139, wherein the electrolyte comprises a lithium salt and a solvent selected from the group consisting of dimethyl carbonate (DMC), diethylcarbonate (DEC), dipropylcarbonate (DPC), ethylmethylcarbonate (EMC), ethylene carbonate (EC), propylene carbonate (PC), butylene carbonate, lactones, esters, glymes, sulfoxides, sulfolanes, and mixtures thereof.

170. (NEW) The battery of Claim 169, wherein the electrolyte comprises a solvent selected from the group consisting of EC/DMC, EC/DEC, EC/DPC and EC/EMC.